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Poultry Farmers' Awareness and Performance in Good Agricultural Practices Implementation in Broiler Production in Yenagoa Local Government Area, Bayelsa State

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ABSTRACT

This study was on Poultry Farmers' Awareness and Performance in Good Agricultural Practices (GAPs) Implementation in Broiler Production in Yenagoa Local Government Area (YELGA), Bayelsa State. Specifically, this study set out to ascertain the awareness of GAPs among poultry farmers, identify GAPs implemented in broiler production by YELGA poultry farmers and determine performance of poultry farmers in GAPs implementation in broiler production in YELGA. From a list of 281 poultry farmers obtained from the State's Agricultural Development Programme, 90 poultry farmers were randomly selected for the study and questionnaire administered to them. Descriptive statistical tools of frequency distribution, percentage, means and ranking were used to analyze data primarily obtained for the study. Findings include; Despite overwhelming awareness (100%) of GAPs in broiler production; as recorded by poultry farmers in YELGA, record as high as 100% poultry farmers' awareness of some GAPs and awareness by as few as 3.33% of the poultry farmers exist. Also, out of twenty-three (23) listed GAPs items; under various GAPs Pillars, GAPs Pillar 3 (Social Acceptability); took the lead with 15.41%. This is followed by GAPs Pillar 4 (Food Safety and Quality); with 14.35% then by GAPs Pillar 2 (Environmental Stability); with 11.55% and lastly, GAPs Pillar 1(Economic Viability); with 5.07%. These summed up to a Grand Percentage Total (GPT) of 46.83%; implying Fair performance rating in GAPs implementation in broiler production among YELGA poultry farmer. The work concludes that poultry farmers of YELGA, are aware of GAPs in broiler production; but performed fairly on GAPs implementation in broiler production in YELGA, Bayelsa State. It recommends that extension effort could be intensified to close ranks in areas of less GAPs Implementation through targeted training programs to educate poultry farmers and enhance their GAPs techniques and best practices.

Keywords: good agricultural practices, awareness, implementation, performance, poultry farmers, broiler production.

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1. INTRODUCTION

Agriculture has been an old practice; dating back to man's creation and existence. The production of food and fiber for human and animal use remains the very task in agriculture. No nation or people of the world have proven existence without food; thus, the relevance of food in the life and living of man cannot be over orchestrated. Shaw, Preuschen and Palmer (2024) affirm food as the most basic human need; stating that domestication and cultivation of animals and plants over 11,500 years ago, current activities and relentless human drive to understand and control Earth's biosphere aimed at ensuring that this need is met.

Agriculture according to Oxford Reference (2024), is the practice of cultivating the soil, growing crops, or raising livestock for human use, including the production of food, feed, fibre, fuel, or other useful products. Anonymous (undated) defined agriculture as an art, science and business of producing crops and livestock for economic purposes. Shaw *et. al.,* (2024) viewing agricultural science stated that it deals with food and fibre production and processing; including the

technologies of soil cultivation, crop cultivation and harvesting, animal production, and the processing of plant and animal products for human consumption and use. It utilizes all technologies developed on scientific principles (Anonymous, undated). To Harris and Fuller (2014), agriculture is the most comprehensive word used to denote the many ways in which crop plants and domestic animals sustain the global human population by providing food and other products.

While agriculture remains the oldest industry of the world, its practice no doubt has undergone changes with more evolving. The changes sometimes yield good results and at other times could produce bad effects. These men contend with in his bid to ensure food and nutrition safety and sustainability. Food Systems Primer (2024) in agreement, states that in addition to new and even greater threats, we still face many of the same challenges as our ancestors; hence resource degradation, rapid population growth, disease, changing climates among other forces are periodical challenges that hinder food supplies. Thus, European Environment Agency (2024) despite concurring that the main function of the sustainable food system and its primary sector - agriculture, is to satisfy the basic human need for food, maintain ecosystem health and contribute to social well-being, asserts that the food system is one of Europe's major systems of production and consumption, causing over one-fifth of all environmental and climate impact.

Agriculture has not stopped being key sector in the Nigerian economy for growth, employment, poverty alleviation, income earning, wealth creation and overall development. Also, livestock production sub-sector constitutes a critical and basic part of the agricultural economy of Nigeria; as the significance of animal protein in human diet remains undisputed. While animal protein, supply man with high quality nutrient for growth, development and dead/worn-out tissue replacement, it remains a pointer to the level of nourishment and health of a nation's labor force and citizens; upon which the advancement of a country and its economy could be judged or placed. According to Food and Agriculture Organization Corporate Statistical Database (FAOSTAT) (2017), Nigeria's most active and fastest-growing livestock subsector remains the poultry industry; with over 180 million birds. Again, poultry; particularly the broiler segment, is expanding quickly in sub-Saharan Africa and offer a good number of potential economic and health advantages for nations and their citizens (Shaw, Nielson and Rose, 2019). In the light of this, World Bank (2021) reported anticipated recovery due to increasing demand and growth by 2.3% in 2021 and 3.1% in 2022 following a 2.0% decline in 2020. This at present no doubt may have improved beyond World Bank's projection.

By FAO minimum threshold of 35kg per capita consumption of poultry meat, Nigerians average consumption of approximately 1.9 kg (FAO, 2018), shows a deficit or shortfall of 33.10 kg. This is quite alarming and saddening. This seems to explain the near or complete absence of meat in daily food and nutrition of many urban and rural poor households. The domestic demand for poultry products therefore seems not met; as severely and increasing inadequate supply seem to be at display. There is need therefore, to stop this trend that threatens the food security of the people. Changing this narrative however, may not be sustainable if the Good Agricultural Practice (GAP) is not incorporated in the production system of the poultry farmers.

Tariengco (2024) explained GAP as set of standards for safe and sustainable production of crops and livestock by farmers to maximize yields and optimize business operations at minimized production costs and environmental impact. GAP is market oriented; as producers focus on consumers' demand. Furthermore, Good Agricultural Practices (GAPs) in raising animals as identified by Tariengco (2024) include minimum use of non- therapeutic antibodies or hormones, avoiding feeding livestock with animal by- products (such as processed animal protein), and ensuring adequate clean farm's equipment and machinery to prevent the spread of disease. FAO (2023) from a holistic view, identified four (4) pillars of GAP. They are; economic viability, environmental stability, social acceptability, and food safety and quality. GAPs no doubt plays significant role, in the production of broilers in global food security and economic development. GAPs in broiler production therefore will ensure that practice meets the required standards in terms of food safety, animal welfare, and environmental sustainability. These practices are particularly important for poultry farmers who are expected to adhere to guidelines set by regulatory bodies. Despite the existence of GAP guidelines, there is limited research on the actual implementation of these practices by poultry farmers in broiler production; particularly in Yenagoa Local Government Area (YELGA), Bayelsa State, Nigeria.

There is much evidence to show research on broiler production. For example, Chiekezie, Nwankwo and Ozor (2022) worked on analysis of small scale broiler poultry production in South East, Nigeria. However, no work has been seen on good agricultural practices in broiler production among poultry farmers in YELGA, Bayelsa State, Nigeria. This study is therefore considered timely and appropriate; as its findings will close the knowledge gap on good agricultural practices in broiler production particularly in YELGA of Bayelsa State. In the light of this, this study specifically, ascertained the awareness of GAPs among poultry farmers, identify GAPs implemented in broiler production by YELGA poultry farmers and determine performance of poultry farmers' in GAPs implementation in broiler production in YELGA.

2. METHODOLOGY

This study was conducted in Yenagoa Local Government Area, Bayelsa State. The area lies between Latitudes 4°45' N and 5°23' S and Longitudes 5°15' E and 6°45' E (Bayelsa Map, 2024). It is bounded in the East and West by Ogbia and Kolokuma/Opukuma Local Government Areas respectively, while in the South and North respectively, by Southern Ijaw Local Government Area and Ahoada West Local Government Area of River State. YELGA, houses the seat of power – State capital. The population of YELGA was put at 353,344 persons (National Population Commission (NPC), 2006); giving a projected population of 497,508 persons at 2.4 annual growth exponential as at 2023. It lies within the rainforest zone; with a humid equatorial climate. Her annual rainfall ranges from 2000mm to 4000mm, maximum temperature average of 30°C and relative humidity ranging between 55 and 90 percent. The area is vulnerable to flood. The predominant people are Ijaw ethnic group along with Epie/Atissa speaking groups. Fishing, crop and livestock farming, and trading, hunting, lumbering, palm oil milling, palm wine tapping among others are the livelihood activities of the people. A random sampling technique was employed for this study. From a list of two hundred and eighty-one (281) registered poultry farmers obtained from Agricultural Development Program (ADP) office in YELGA, Bayelsa state, ninety (90) poultry farmers were randomly selected for the study and structured questionnaire administered to them. Descriptive tools like mean, frequency and percentage were used in the analysis. The rating of 70% and above = Excellent, 60% to 69% = Very Good, 50% to 59% = Good, 40% to 49% = Fair and 39% and less = Poor was used in this study to rate the performance of poultry farmers on GAPs implementation.

3. RESULT PRESENTATION

3.1 Awareness of GAPs in broiler production by poultry farmers in yenagoa local government area

Table 1: Distribution of poultry farmers in Yenagoa Local Government Area according to GAPs awareness in broiler production

Item	Frequency	Percentage
Aware	90	100.00
Not aware	0	0.00
Total	**90**	**100.00**

Source: field survey data, 2024.

The result in Table 1 above, shows poultry farmers awareness of Good Agricultural Practices (GAPs) in broiler production. From the result, all (100%) of poultry farmers in YELGA are aware of GAPs.

3.2: Gaps Awarness and Implementation by Yelga Poultry Farmers

Table 2: Distribution of GAPs aware and implemented by YELGA poultry farmers

Item	Aware; Freq. (%)	Implementation; Freq. (%)
GAP Pillar 1: Economic Viability		
Make financial plans	90 (100.00)^{1st}	90 (100.00)^{1st}
Keep annual reports	87 (96.67)^{2nd}	7 (7.78)^{3rd}
Do management reviews	87 (96.67)^{2nd}	8 (8.89)^{2nd}
GAP Pillar 2: Environmental Stability		
Manage degraded area to avoid further degradation	64 (71.11)^{5th}	64 (71.11)^{2nd}
Proper water management plan	90 (100.00)^{1st}	55 (61.11)^{3rd}
Proper waste management procedure documentation	71 (78.89)^{4th}	1 (1.11)^{7th}
Ensure efficient operation practices and use of electricity and fuel	*90* (100.00)^{1st}	*21 (23.33)^{4th}*
Minimized impact on neighboring property and surrounding areas.	*90* (100.00)^{1st}	*90* (100.00)^{1st}
Records of GAP are kept for two years or more in accordance with statutory or business requirements.	*5 (5.56)^{6th}*	*5 (5.56)^{5th}*
Review carried out at least once a year to identify any new and emerging hazards resulting from inputs, processes, or hazards affecting the environment	*3 (3.33)^{7th}*	*3 (3.33)^{6th}*
GAP Pillar 3: Social Acceptability		
Observe proper use of chemicals and drugs	84 (93.33)^{3rd}	34 (37.78)^{4th}
Correct quantity of feed administered	83 (92.22)^{4th}	83 (92.22)^{1st}
Correct feed type use	79 (87.78)^{5th}	49 (54.44)^{3rd}
Proper vaccination	88 (997.78)^{2nd}	68 (75.56)^{2nd}
Minimum use of hormones	43 (47.78)^{6th}	33 (36.67)^{5th}
Non feeding with animal by-products	22 (24.44)^{7th}	12 (13.33)^{6th}
Practice of unrestricted feeding	90 (100.00)^{1st}	10 (11.11)^{7th}
GAP Pillar 4: Food Safety and Quality		
Clean feeders and drinkers	90 (100.00)^{1st}	90 (100.00)^{1st}

Item	Aware; Freq. (%)	Implementation; Freq. (%)
Quick disposal of dead birds	83 (92.22)[3rd]	90 (100.00)[1st]
Fast isolation of sick birds	77 (85.56)[4th]	90 (100.00)[1st]
Use of safety/protective wears	90 (100.00)[1st]	9 (10.50)[5th]
Use of 6 inches liter	13 (14.44)[6th]	13 (14.44)[4th]
Use of foot dip	52 (57.78)[5th]	5 (5.56)[6th]
***Multiple response**		

Source: field survey data, 2024.

The result in Table 2 above, indicate GAPs in broiler production aware of and implemented by YELGA poultry farmers. From the result, all poultry farmers (100%) in YELGA are respectively aware of Financial plans, Proper water management plan, Efficient operation practices and use of electricity and fuel, Minimized impact on neighboring property and surrounding areas, Practice of unrestricted feeding and Use of safety/protective wears. Other GAPs aware of by poultry farmers are; Keeping annual reports and Organize management reviews (96.67%) respectively, Manage degraded area to avoid further degradation (71.11%), Proper waste management procedure documentation (78.89%), Records of GAP are kept for two years or more in accordance with statutory or business requirements (5.56%), Review carried out at least once a year to identify any new and emerging hazards resulting from inputs, processes, or hazards affecting the environment (3.33%), Observe proper use of chemicals and drugs (93.33%), Correct quantity of feed administered (92.22%), Use of correct feed type (87.78), Proper vaccination (97.78%), Minimum use of hormones (47.78%), Non feeding with animal by-products (24.44%), Quick disposal of dead birds (92.22%), Fast isolation of sick birds (85.56%), Use of 6 inches liter (14.44%) and Use of foot dip (57.78%).

On the other hand, result of GAPs implementation in broiler production among YELGA poultry farmers indicated that in GAP Pillar 1 (Economic Viability), making of financial plans ranked 1st with all poultry farmers (100%) in YELGA indicating its implementation. This is followed by management review (2nd); indicated by 8.89% of the poultry farmers as GAP implemented by them. The 3rd in rank was keeping of annual reports; indicated by 7.78% of YELGA poultry farmers as GAP implemented by them.

Again, as regards to the result on GAP Pillar 2 (Environmental Stability), Minimized impact on neighboring property and surrounding areas, took the lead (1st) with 100% implementation by the farmers in YELGA. Followed by this are Manage degraded area to avoid further degradation (2nd) and Proper water management plan (3rd), as indicated by 71.11% and 61.11% respectively. Ensure efficient operation practices and use of electricity and fuel, was ranked 4th by 22.33% poultry farmers in YELGA as a GAP they implement in broiler production. It is followed by Records of GAP are kept for two years or more in accordance with statutory or business requirements (5th), Review carried out at least once a year to identify any new and emerging hazards resulting from inputs, processes, or hazards affecting the environment (6th) and Proper waste management procedure documentation (7th). These were indicated as GAPs implemented by 5.56%, 3.33% and 1.11% respectively of poultry farmers in YELGA, Bayelsa State.

Also, on the result of GAP Pillar 3 (Social Acceptability), correct quantity of feed administered; with 92.22% (1st), Proper vaccination; with 75.56% (2nd), Use of correct feed type; with 54.44% (3rd), Observe proper use of chemicals and drugs; with 93.33% (4th), Minimum use of hormones; with 36.67% (5th), Non feeding with animal by-products; with 13.33% (6th) and Practice of unrestricted feeding; with 11.11% (7th) were indicated by poultry farmers in YELGA, Bayelsa State, as GAPs they use in broiler production.

Similarly, the result on GAP Pillar 4 (Food Safety and Quality), shows that all (100%) of poultry farmers in YELGA, Bayelsa State implement 1st, use of clean feeders and drinkers, quick disposal of dead birds and Fast isolation of sick birds respectively. Use of 6 inches liter (4th) and Use of safety/protective wears (5th) were implemented by 14.44% and 10.00% respectively while the Use of foot dip placed last (6th) as indicated by 5.56% poultry farmers.

3.3: Performance in GAPs implementation in broiler production among yelga poultry farmers

Table 4.3: YELGA poultry farmers Performance in GAPs implementation in broiler production.

Item	Item %	Pillar %	Pef. Rating
GAP Pillar 1: Economic Viability		5.07	P
Make financial plans	100.00		E
Keep annual reports	7.78		P
Do management reviews	8.89		P
GAP Pillar 2: Environmental Stability		11.55	P
Manage degraded area to avoid further degradation	71.11		E
Proper water management plan	61.11		VG

Item	Item %	Pillar %	Pef. Rating
Proper waste management procedure documentation	1.11		P
Ensure efficient operation practices and use of electricity and fuel	23.33		P
Minimized impact on neighboring property and surrounding areas.	100.00		E
Records of GAP are kept for two years or more in accordance with statutory or business requirements.	5.56		P
Review carried out at least once a year to identify any new and emerging hazards resulting from inputs, processes, or hazards affecting the environment	3.33		P
GAP Pillar 3: Social Acceptability		15.41	G
Observe proper use of chemicals and drugs	37.78		P
Correct quantity of feed administered	92.22		E
Correct feed type use	87.78		E
Proper vaccination	75.56		E
Minimum use of hormones	36.67		P
Non feeding with animal by-products	13.33		P
Practice of unrestricted feeding	11.11		P
GAP Pillar 4: Food Safety and Quality		14.35	G
Clean feeders and drinkers	100.00		E
Quick disposal of dead birds	100.00		E
Fast isolation of sick birds	100.00		E
Use of safety/protective wears	10.00		p
Use of 6 inches liter	14.44		P
Use of foot dip	5.56		P
Grand Percentage Performance Score		**46.38**	**F**

Source: field survey data, 2024.

The result in Table 3 above, indicate performance rating in GAPs implementation in broiler production among YELGA poultry farmers. Out of twenty-three (23) GAPs items, YELGA poultry farmers performed excellently in ten (10) forming approximately 44%. they also had very good performance in just an item; forming approximately 4% while they performed poorly in majority of the items twelve (12); with a percentage of approximately 52. However, according to GAPs pillars, the three (3) items under Pillar 1 (Economic Viability) made a total percentage score of 5.07 (4th) while the seven (7) items in Pillar 2 (Environmental Stability) scored a total of 11.55% (3rd). On the other hand, the seven (7) items and six (6) items in GAPs Pillars 3 (Social Acceptability) and 4 (Food Safety and Quality) scored 15.41% (1st) and 14.35% (2nd) respectively. Thus, a grand percentage total of 46.38% of all GAPs Pillars was obtained.

4. DISCUSSION

4.1 Awareness of gaps in broiler production by poultry farmers in yelga

A 100% affirmation by poultry farmers of awareness of GAPs in broiler production remains plausible and greatly commendable. This high level of awareness, could portend high possibility of GAPs use in broiler production. Animal and human welfare therefore; through production of quality meat that meets consumer demand and global standard could be guaranteed.

4.2 GAPs aware of and implemented by poultry farmers in Yelga, Bayelsa state

Poultry farmers in YELGA are very much aware of a wide range of GAPs used in broiler production even though the percentage ratings for the various GAPs items vary. While record as high as 100% poultry farmers' awareness of some items exist, others were aware of; by as few as 3.33% of the poultry farmers. The variation however, could be pointer to the farmers' performance in the GAPs implementation.

4.3 Performance in GAPs implementation in broiler production among Yelga poultry farmers

Despite overwhelming awareness of GAPs in broiler production; as recorded by poultry farmers in YELGA, performance in GAPs implementation remain worrisome. Out of twenty-three (23) listed GAPs items; under various GAPs Pillars, GAPs Pillar 3 (Social Acceptability); took the lead with 15.41%. This is followed by GAPs Pillar 4 (Food Safety and Quality); with 14.35% then by GAPs Pillar 2 (Environmental Stability); with 11.55% and lastly, GAPs Pillar 1(Economic Viability); with 5.07%. These summed up to a Grand Percentage Total (GPT) of 46.83%. The implication of this result is that performance in GAPs implementation in broiler production among YELGA poultry farmers was Fair. This result could be true reflection of extant standards among farmers of mostly developing nations; with prevailing ailing economies, poverty, hunger, food and nutrition insecurity among others. Take for instance, in GAPs Pillar 1(Economic Viability); where all farmers (100%) make financial plans to start and possibly sustain business, but pay little or no attention to keeping annual reports (7.78%) and do management reviews (8.89%). This could be due to the fact that most farm businesses in Nigeria, Bayelsa and YELGA in particular are small scale businesses that has just transited or are still in transition from subsistence to commercial. These businesses are in most cases one-man

businesses; characterized by own/family labour, own capital, little or no management arrangement or structure and informal operations. Proprietor's interest may become paramount in regards to finances rather than records; especially in the absence of management.

Again, under GAPs Pillar 2 (Environmental Stability), poultry farmers performed excellently (100%) in ensuring minimized impact on neighboring property and surrounding areas. This could be to avoid litigation that could possibly ensue; if precaution is not taken. Boundary disputes that are settled by various means such as; traditional - by local arbitrations, legal - by law suites, or sometimes 'spiritual' (a belief system) - by oath administration are common in most rural areas. Other cases such as land encroachment and dispute among others also prevail. Additionally, the possibility of law suit over environmental pollution could be factors that necessitated the orchestrated excellence in performance. On the contrary, poor performances recorded against Proper waste management procedure documentation (1.11%), Review carried out at least once a year to identify any new and emerging hazards resulting from inputs, processes, or hazards affecting the environment (3.33%), Records of GAP kept for two years or more in accordance with statutory or business requirements (5.56%) and Ensure efficient operation practices and use of electricity and fuel (23.33%) may not be unconnected to financial reasons earlier proffered in discussion.

Whereas under the GAPs Pillar 3 (Social Acceptability), YELGA poultry farmers' excellent performance on; Correct quantity of feed administered (92.22%), Correct feed type use (87.78%) and Proper vaccination (75.56%) and on the converse; poor performance rating on Practice of unrestricted feeding (11.11%), Non feeding with animal by-products (13.33%), Minimum use of hormones (36.67%) and Observe proper use of chemicals and drugs (37.78%) in broiler production, may have been propelled by availability and affordability rather than purely for societal acceptance of either the practice or the product. This may not augur well with the society in terms of animal and human welfare; for which global standards for GAPs were set. Despite these, the top performance of GAPs Pillar 3 (15.41%); ranking 1st is commendable even though there is room for improvement. There is need for proper education and orientation of farmers to improve their performance.

Also, excellent performance of YELGA poultry farmers on ensuring use of Clean feeders and drinkers, Quick disposal of dead birds and Fast isolation of sick birds; with all implemented by 100% of poultry farmers under GAPs Pillar 4 (Food Safety and Quality), is highly commendable in as much as their poor implementation performance on Use of foot dip (5.56%), Use of safety/protective wears (10.00%) and Use of 6 inches liter (14.44%) is worrisome. Lessons from recent pandemic of COVID-19, Ebola disease among others, requires that adequate protection and safety of frontline workers remain supreme. There is need therefore for increased education and information dissemination to awaken and improve poultry farmers' consciousness for adequate protection of poultry workers. Government role in legislation and advocacy could be possible.

5. CONCLUSION AND RECOMMENDATION

Poultry farmers of YELGA, are very much aware of GAPs in broiler production; with discrepancies between GAPs aware of and GAPs implemented. Thus, poultry farmers performed fairly on GAPs implementation in broiler production in YELGA, Bayelsa. Extension effort could be intensified to close ranks in areas of less GAPs Implementation through targeted training programs to educate poultry farmers and enhance their GAPs techniques and best practices.

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